

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION**

**TENTATIVE MONITORING AND REPORTING PROGRAM**

**NO. R9-2002-0282**

**NPDES PERMIT NO. CA0109142**

**WASTE DISCHARGE REQUIREMENTS  
FOR  
CONTINENTAL MARITIME OF SAN DIEGO, INC.  
SAN DIEGO COUNTY**

This Monitoring and Reporting Program (MRP) shall become effective with the adoption of Order No. 2002-282 and supersedes MRP No. 97-37 in its entirety.

**A. PURPOSE**

This monitoring program is intended to:

- Document short-term and long-term effects of the discharge on receiving waters, sediments, biota and beneficial uses of the receiving water.
- Determine compliance with NPDES permit terms and conditions.
- Determine compliance with water quality objectives.
- Determine effectiveness of Best Management Practices.

**B. MONITORING PROVISIONS**

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations identified in the *Report of Waste Discharge* and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to, and the approval of, this Regional Board. Samples shall be representative of conditions when highest concentrations of pollutants are expected, with respect to compliance with requirements of Order No. R9-2002-0282.
2. Monitoring must be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved under Title 40 of the Code of Federal Regulations Part 136 (40 CFR 136), *Guidelines Establishing Test Procedures for the Analysis of Pollutants*, as procedures have been specified in Order No. R9-2002-0282 and/or in this Monitoring and Reporting Program and/or by this Regional Board.

3. If the discharger monitors any pollutants more frequently than required by Order No. R9-2002-0282, or by this Monitoring and Reporting Program, using test procedures approved under 40 CFR 136, or as specified in Order No. R9-2002-0282 or this Monitoring and Reporting Program, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.
4. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by Order No. R9-2002-0282 and this Monitoring and Reporting Program, and records of all data used to complete the application for Order No. R9-2002-0282. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended by request of this Regional Board or by the USEPA at any time.
5. Records of monitoring information shall include:
  - a. The date, exact location, and time of sampling or measurements;
  - b. The name(s) of individual(s) who performed the sampling or measurements;
  - c. The date(s) analyses were performed;
  - d. The laboratory and individual(s) who performed the analyses;
  - e. The analytical techniques or methods used; and
  - f. The results of such analyses.
6. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in Order No. R9-2002-0282 or this Monitoring and Reporting Program.
7. All analyses shall be performed in a laboratory that is certified by the California Department of Health Services to perform such analyses or a laboratory approved by this Regional Board.
8. The discharger shall report in a cover letter all instances of noncompliance not reported under *Reporting Requirement F.5* of Order No. R9-2002-0282 at the time monitoring reports are submitted. The reports shall contain the information listed in *Reporting Requirement F.5*.
9. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

10. Monitoring results must be reported on forms approved by this Regional Board. Duplicate copies of the monitoring reports signed and certified as required by *Reporting Requirement F.8* of Order No. R9-2002-0282 must be submitted to the USEPA and the Regional Board at the addresses listed in *Reporting Requirement F.10* of Order No. R9-2002-0282.
11. Monitoring results shall be reported at intervals and in a manner specified in Order No. R9-2002-0282 or in this Monitoring and Reporting Program.
12. This Monitoring and Reporting Program may be modified by this Regional Board, as appropriate.
13. A grab sample is defined as an individual sample of at least 100 milliliters collected over a period not exceeding 15 minutes. Grab samples shall be collected over a shorter period, if necessary, to ensure that the constituent/parameter concentration in the sample accurately represents conditions at the sampling location during the time that the sample is collected.

### C. MONITORING AND REPORTING SCHEDULE AND FREQUENCY

Monitoring reports shall be submitted to this Regional Board according to the following schedule:

Table 1: Monitoring Report Schedule

Monitoring Frequency	Reporting Period	Report Due
<b>DAILY, MONTHLY</b>  Compliance Certification, Monthly Effluent Monitoring Reports.	All	By the first day of the second month after the month of sampling.
<b>QUARTERLY</b>  Quarterly Effluent Monitoring Reports, and Spill/Illicit Discharge Log.	January - March April - June July - September October - December	May 1 August 1 November 1 February 1
<b>SEMIANNUALLY</b>  Semiannual Effluent Monitoring Reports & Waste Hauling Log.	January - June July - December	August 1 February 1

Monitoring Frequency	Reporting Period	Report Due
<b>ANNUALLY</b>  Annual Report Summary, Annual Effluent Monitoring Reports, Annual Storm Water Monitoring Reports, Chemical Utilization Audit, Sediment Monitoring Reports (tables, graphs, maps), Sediment Trend Curves & Statistical Analyses, and Paint Chip Analysis	July - June	September 1

#### D. EFFLUENT MONITORING

##### 1. FIRE PROTECTION SYSTEMS:

- a. The discharger shall monitor discharges to surface waters of the effluent from the Fire Protection Systems at Pier Nos. 4 and 6 for the parameters identified in Table 2. Monitoring stations associated with the Fire Protection Systems at Pier Nos. 4 and 6 shall be specified in the *Best Management Practices (BMP) Program Manual* and shall not be changed without notice to and the approval of this Regional Board.

The effluent monitoring report for fire protection water shall include the name of the ship/vessel for which the fire protection system was operated.

TABLE 2. Sample Analysis Parameters of Effluent Discharge from Fire Protection Systems

PARAMETER	UNIT	TYPE OF SAMPLE	MINIMUM FREQUENCY
Flow	gallons per day	estimate	monthly
Oil & Grease	mg/L	grab	annually
Settleable Solids	ml/L	grab	annually
Turbidity	NTU	grab	annually
pH	pH Units	grab	annually
Temperature	°F	measurement	annually
TSS	mg/L	grab	annually
Arsenic	µg/L	grab	annually

PARAMETER	UNIT	TYPE OF SAMPLE	MINIMUM FREQUENCY
Cadmium	µg/L	grab	annually
Chromium	µg/L	grab	annually
Copper	µg/L lb/day	grab	monthly
Lead	µg/L	grab	annually
Mercury	µg/L	grab	annually
Nickel	µg/L	grab	annually
Silver	µg/L	grab	annually
Zinc	µg/L	grab	annually
TBT	µg/L	grab	annually
Acute Toxicity <sup>a</sup>	% survival	grab	annually
Chronic Toxicity <sup>b</sup>	TUc	grab	annually
PAH <sup>c</sup>	µg/L	grab	annually
Total Residual Chlorine	mg/L	grab	annually

Units: mg/L = milligrams per liter, µg/L = micrograms per liter, TUc = Chronic Toxicity Units.

## 2. STORM WATER MONITORING

### a. Non-Storm Water Discharge Visual Observations

- i. The discharger shall visually observe all drainage areas within its facility for the presence of unauthorized non-storm water discharges.
- ii. Visual observations shall document the presence of any discolorations, stains, odors, floating materials, etc., as well as the source of any discharge (if known). Records shall be maintained of the visual observation dates, locations observed, observations, and response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The *BMP Program Manual* shall be revised, as necessary, and implemented in accordance with Order No. R9-2002-0282.
- iii. The visual observations required above shall be conducted at the following frequencies:

- (a) High Risk Areas (defined in *Attachment E* of Order No. R9-2002-0282)

The discharger shall conduct monthly visual observations in high risk areas, as defined in *Attachment E* of Order No. R9-2002-0282, during daylight scheduled facility operating hours<sup>1</sup>, on days with no discharges of

<sup>1</sup> "Scheduled facility operating hours" are the time periods when the facility is staffed to conduct any function

- storm water runoff associated with industrial activities.
- (b) All other areas

The discharger shall conduct quarterly visual observations in all other areas during daylight scheduled facility operating hours, on days with no discharges, as defined in *Attachment E* of Order No. R9-2002-0282, of storm water runoff associated with industrial activities. Quarterly visual observations shall be conducted in each of the following periods: January-March, April-June, July-September, and October-December. The discharger shall conduct quarterly visual observations within 6-18 weeks of each other.

b. Storm Water Discharge Visual Observations

- i. Visual observations are required of all discharges of storm water runoff associated with industrial activity occurring during daylight hours that are preceded by at least 3 days without discharges, as defined in *Attachment E* of Order No. R9-2002-0282.
- ii. Visual observations of storm water runoff associated with industrial activities shall document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and source of any pollutants. Records shall be maintained of observation dates, locations observed, observations, and response taken to reduce or prevent pollutants in discharges, as defined in *Attachment E* of Order No. R9-2002-0282. The *BMP Program Manual* shall be revised, as necessary, and implemented in accordance with Order No. R9-2002-0282.

- iii. Storm water discharge visual observations shall be conducted at the following frequencies:

- (a) High Risk Areas

The discharger shall conduct visual observations of discharges of storm water runoff associated with industrial activity from high risk areas, as defined in *Attachment E* of Order No. R9-2002-0282, during each storm event. These visual observations shall occur during the first hour of discharge and at all discharge locations. Visual observations of stored or contained storm water shall occur at the time of release.

- (b) All other areas

The discharger shall conduct visual observations of discharges, as defined in *Attachment E* of Order No. R9-2002-0282, of storm water runoff

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related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

associated with industrial activity from all other areas during one storm event per month during the wet season (October 1-May 30). These visual observations shall occur during the first hour of discharge and at all discharge locations. Visual observations of stored or contained storm water shall occur at the time of release.

c. Storm Water Sampling and Analysis

- i. The discharger shall collect storm water samples during the first hour of discharge from:
- (1) The first storm event of the wet season that produces discharges, and
  - (2) At least one other storm event in the wet season that produces discharges.

All storm water outfall locations to San Diego Bay shall be sampled when discharge occurs. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is released to outfalls. If a sample is not collected from the first storm of the wet season that produces discharges, as defined in *Attachment E* of Order No. R9-2002-0282, the discharger is still required to collect samples from two other storms of the wet season that produce discharges and shall explain in the Storm Water Annual Report why the first storm that produces discharges was not sampled. If a sample cannot be taken during the first hour of a discharge, the discharger shall explain why the samples could not be taken during this period of time.

- ii. Samples shall be collected from discharges, as defined in *Attachment E* of Order No. R9-2002-0282, of storm water that are preceded by at least 7 days without storm water discharge.
- iii. The samples shall be analyzed in accordance with Table 3 of this Monitoring and Reporting Program:

TABLE 3. Sample Analysis Parameters

PARAMETER	UNIT <sup>1</sup>	TYPE OF SAMPLE	MINIMUM FREQUENCY
Discharge Volume	gallons	estimate <sup>2</sup>	2 storms per year
Total Petroleum Hydrocarbons (TPH)	mg/L	grab	2 storms per year
TSS	mg/L	grab	2 storms per year
Settleable Solids	ml/L	grab	2 storms per year
pH	pH Units	grab	2 storms per year
Arsenic	µg/L	grab	2 storms per year
Cadmium	µg/L	grab	2 storms per year
Chromium	µg/L	grab	2 storms per year
Copper	µg/L	grab	2 storms per year
Lead	µg/L	grab	2 storms per year

PARAMETER	UNIT <sup>1</sup>	TYPE OF SAMPLE	MINIMUM FREQUENCY
Mercury	µg/L	grab	2 storms per year
Nickel	µg/L	grab	2 storms per year
Silver	µg/L	grab	2 storms per year
Zinc	µg/L	grab	2 storms per year
Chemical Oxygen Demand (COD)	mg/L	grab	2 storms per year
TBT	µg/L	grab	2 storms per year
Acute Toxicity <sup>3</sup>	% survival	grab	1 storm per year
Oil & Grease	mg/L	grab	2 storms per year
Total Organic Carbon (TOC)	mg/L	grab	2 storms per year
Specific Conductance	umho/cm	measurement	2 storms per year

<sup>1</sup> Units: mg/L = milligrams per liter, ml/L = milliliters per liter, µg/L = micrograms per liter, ng/L = nanograms per liter, umho = micromhos per centimeter.

<sup>2</sup> The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.

<sup>3</sup> The presence of acute toxicity in the storm water shall be determined as specified in *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (EPA 600/4-90-027F, August 1993 or subsequent editions). The discharger shall conduct an annual acute toxicity test on a sample of storm water. The discharger shall conduct a 96-hour static-renewal test with the vertebrate *Menidia beryllina*, or the invertebrate *Mysidopsis bahia*. The acute toxicity testing shall be a 96-hour static renewal test conducted on a sample of 100% storm water and a laboratory control. Use of two laboratory controls, a receiving water control, and a synthetic laboratory seawater control, is highly recommended. The salinity of the sample should be adjusted to the salinity level typical of the receiving water using dry sea salt. The adjusted salinity level shall be reported. The storm water tests shall be conducted with concurrent reference toxicant tests. Both the reference toxicant and the storm water test shall meet all test acceptability criteria as specified in the above named manual. If the test acceptability criteria are not achieved, the discharger shall re-sample and re-test by the next storm.

d. Storm Water Discharge Sample Locations

- i. The discharger shall visually observe and collect samples of storm water discharges from all drainage areas that represent the quality and quantity of the facility's storm water discharges from the storm event. Monitoring stations shall be established at each point of discharge from areas where industrial activities occur or have occurred during the previous year. Monitoring stations shall be positioned at points where the storm water flow has not commingled with any flow of water from a non-industrial area, and where samples representative of the discharge of storm water runoff associated with industrial activity in the drainage area can be obtained.

Monitoring station locations shall be specified in the *BMP Program Manual*,



depicted on a site map, and shall not be changed without notice to and the approval of this Regional Board. The installation of automatic or mechanical storm water samplers at the monitoring station is recommended.

- ii. With the exception of high risk areas, as defined in *Attachment E* of Order No. R9-2002-0282, if it is determined that the industrial activities and BMPs within two or more drainage areas are substantially identical, the discharger may either (a) collect samples from a reduced number of substantially identical drainage areas, or (b) collect samples from each substantially identical drainage area and analyze a combined sample from each substantially identical drainage area. The discharger must document such a determination in the annual report.

e. Visual Observation and Sample Collection Exceptions

The discharger is required to be prepared to collect samples and conduct visual observations at the beginning of the wet season (October 1) and throughout the wet season until the minimum requirements of *Sections D.2.b* and *D.2.c.* are completed with the following exception:

- i. The discharger is not required to collect a sample (in accordance with *Section D.2.b*) and conduct visual observations (in accordance with *Section D.2.c*) due to dangerous weather conditions, such as flooding, electrical storm, etc. Non-storm water visual observations are only required during daylight scheduled facility operating hours. Storm water visual observation are only required during daylight hours. If the discharger did not collect the required samples or conduct visual observations during a wet season due to this exception, an explanation in the Storm Water Annual Report shall be included stating why the sampling or visual observations could not be conducted.

f. Monitoring Methods

- i. All sampling and sample preservation shall be in accordance with the current edition of *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association). All monitoring instruments and equipment (including a facility operator's own field instruments for measuring pH and conductivity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses must be conducted according to test procedures outlined in 40 CFR Part 136, unless other test procedures have been specified in this permit or by the Regional Board. All metals shall be reported as total metals.
- ii. Influent and effluent sample shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give higher copper readings in saline-matrix samples due to interference with the sodium-argon complex. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon

complex before the sample is tested for copper.

g. Records

Records of all storm water monitoring information and copies of all reports (including the Annual Reports) required under Order No. R9-2002-0282 or this Monitoring and Reporting Program shall be retained for a period of at least five years. These records shall include:

- i. The date, place, and time of site inspections, sampling, visual observations, and/or measurements;
- ii. The individual(s) who performed the site inspections, sampling, visual observations, and or measurements;
- iii. Flow estimates;
- iv. The date and approximate time of analyses;
- v. The individual(s) who performed the analyses;
- vi. Analytical results, method detection limits, and the analytical techniques or methods used;
- vii. Quality assurance/quality control records and results;
- viii. Non-storm water discharge visual observations and storm water discharge visual observation records (see *Sections D.2.a and D.2.b*);
- ix. Visual observation and sample collection exception records (see *Section D.2.e*);
- x. All calibration and maintenance records of on-site instruments used;
- xi. The records of any corrective actions and follow-up activities that resulted from the visual observations.

h. Storm Water Annual Report

The discharger shall submit a Storm Water Annual Report by September 1 of each year to the Regional Board. The report shall include the following:

- Summary of visual observations and sampling and analysis results;
- Evaluation of the visual observation and sampling and analysis results; laboratory reports;
- *Annual Comprehensive Site Compliance Evaluation Report* required by Order

- No. R9-2002-0282;
- Explanation of why the facility did not implement any activities required by Order No. R9-2002-0282 (if not included in the Evaluation Report); and
- Records specified in *Section D.2.g.*

The method detection limit of each analytical parameter shall be included. Analytical results that are less than the method detection limit shall be reported as "less than the method detection limit." The Annual Report shall be signed and certified in accordance with *Reporting Requirement F.8* of Order No. R9-2002-0282. The discharger shall prepare and submit the Storm Water Annual Report using the annual report forms provided by the State Board or Regional Board or shall submit their information on a form that contains equivalent information.

i. Additional Storm Water Sampling

Based on a review of the *BMP Program Manual* and the annual report, the Regional Board may direct the discharger to monitor at different and/or additional storm water discharge points.

**E. RECEIVING WATER MONITORING**

The discharger is required to monitor the receiving water for the following discharge:

- **Fire protection water:**

The discharger shall monitor the receiving water for total copper ( $\mu\text{g/L}$ ) on a monthly basis. The sampling point shall be representative of the influent entering the fire protection systems at Pier Nos. 4 and 6 from San Diego Bay. Receiving water sampling for copper shall be conducted concurrently with effluent sampling.

**F. CALIFORNIA TOXICS RULE MONITORING**

The discharger shall monitor and report each of the 17 chlorinated dibenzodioxins and chlorinated dibenzofurans congeners listed in Table 4 of the Implementation Policy (see Attachment 1) for effluent from the fire protection water systems once during the October 2003 - February 2004 wet weather period. Results of the monitoring shall be reported no later than April 1, 2004. (congener data for dry weather sampling and sampling data for 126 priority pollutants in the fire protection system effluent was already received on April 15, 2002.).

The discharger shall report for each congener the analytical results of the effluent monitoring, including the quantifiable limit and the MDL, and the measured or estimated concentration. In addition, the discharger shall multiply each measured or estimated congener concentration by its respective Toxicity Equivalency Factor (TEF) value for 2,3,7,8 TCDD (see Attachment 1) and report the sum of these values.

## **G. COMPLIANCE CERTIFICATION**

The discharger shall submit a report certifying either compliance or noncompliance with all requirements and conditions of Order No. R9-2002-0282. The certification shall be signed by an authorized person as required in *Reporting Requirement F.8* of Order No. R9-2002-0282, and shall be submitted monthly to this Regional Board in accordance with Table 1 of this Monitoring and Reporting Program.

## **H. SPILL / ILLICIT DISCHARGE LOG**

The discharger shall log and report all spills and illicit discharges within and from Continental Maritime each month. The spill / illicit discharge reports shall identify:

- the time and date of the spill or illicit discharge;
- the cause of the spill or illicit discharge;
- the materials or wastes involved in the spill or illicit discharge,
- the estimated volume of the spill or illicit discharge;
- the specific location where the spill or illicit discharge originated;
- the fate of the spill or illicit discharge (e.g., San Diego Bay);
- the physical extent or size of the problem area(s);
- whether the spill or illicit discharge contained pollutants;
- the public agencies notified;
- the corrective actions taken; and
- the means to prevent or minimize future spills or illicit discharges.

The reports shall be signed by an authorized person as required in *Reporting Requirement F.8* of Order No. R9-2002-0282, and shall be submitted quarterly to the Regional Board in accordance with Table 1 of this Monitoring and Reporting Program.

The discharger shall include in its annual effluent report, a summary of the spills and illicit discharges that occurred in or on its leasehold. The spill / illicit discharge summary report shall indicate the total number of spills and illicit discharges for the year, categorize the spills and illicit discharges, and provide the percentages of each type of spill or illicit discharge in a graphical representation. The summary report shall also indicate the efforts the discharger used in the year to prevent or minimize spills.

## **I. CHEMICAL UTILIZATION AUDIT**

The discharger shall submit a complete Chemical Utilization Audit form to summarize the use of hazardous materials and wastes generated. The form shall be signed by an authorized person as required in *Reporting Requirement F.8* of Order No. R9-2002-0282,

and shall be submitted annually to the Regional Board in accordance with Table 1 of this Monitoring and Reporting Program.

## **J. WASTE HAULING LOG**

The discharger shall submit a log showing the volume, type, disposition, and date of disposal for all wastes originating from Continental Maritime during each month. The log shall be signed by an authorized person as required in *Reporting Requirement F.8* of Order No. R9-2002-0282, and shall be submitted semi-annually to the Regional Board in accordance with Table 1 of this Monitoring and Reporting Program.

## **K. SEDIMENT CHEMISTRY MONITORING**

### **a. Sample Collection**

- i. The sediment sampling program shall consist entirely of surficial sediment samples, and shall be conducted by the discharger at the stations within its leasehold, as specified in *Sediment Monitoring Station Locations, Section K.e*, of this Monitoring and Reporting Program.
- ii. One sample shall be collected from each designated station on an annual basis.
- iii. Each sample shall consist of three replicates (jars of sediment) to be composited in the laboratory prior to analysis.

Samples shall not be discarded after analysis. All samples shall be frozen and retained for a period of no less than 45 days from the date on which Regional Board received the corresponding analytical results. The Regional Board shall notify the discharger when the samples can be discarded.

- iv. Surficial sediment samples shall be collected by grab. Grab samples shall be collected with a 0.1 m<sup>2</sup> modified van Veen grab. The grab sampler shall be galvanized, stainless steel, or Teflon-coated. All surfaces of the grab shall be clean and free of rust. Grab sample collection procedures shall be consistent with appropriate methods, including the criteria for acceptable grab samples specified in the *Southern California Coastal Water Research Project (SCCWRP) Field Methods Manual*. The sub-sample to be analyzed shall be taken from the top 2-3 cm of undisturbed grab sample. Detailed field protocol is provided in EPA's guidance documents 430/9-86-004 and 430/9-82-010, or in the *SCCWRP Field Methods Manual* cited above.
- v. Samples shall be collected in accordance with the current *Sample Collection Plan* that was submitted under Order No. 97-37 and approved by the Regional Board. The plan addresses all collection protocol including station positioning method,

sampling equipment, containers, preservation, transportation, etc.

Any proposed future changes to the *Sample Collection Plan* shall be submitted to the Regional Board for review no later than August 30 of the year in which the changes are proposed to take effect.

If Continental Maritime proposes a new *Sample Collection Plan*, the following items have to be included in the plan:

(a) Narrative Descriptions:

A detailed narrative description of each station location, including distances from permanent key landmarks, shall be developed and confirmed in the field.

(b) Photographs:

Each station shall be marked (if feasible) and photographed. A minimum of two photos shall be taken to show the location of each station relative to the key landmarks that will be used to relocate it (e.g., storm drain outlet, corner of pier, etc).

(c) Station Coordinates:

The discharger shall convert the station coordinates from the Lambert coordinate grid system (i.e., Easting and Northing) into Latitude and Longitude coordinates. All station coordinates shall be confirmed in the field or corrected.

(d) Facility and Reference Station Maps:

Accurate facility and reference station maps shall be developed and confirmed in the field. All maps shall be drawn to a scale of 1"=50' or 1"=100' overlain on a Latitude/Longitude coordinate grid system. In addition to the monitoring stations, the maps shall show only pertinent details such as structures, storm drains, and work areas. A mylar master is recommended, photocopies may be submitted.

The final *Sample Collection Plan* and shall remain unchanged from station to station and year to year.

- vi. If over the course of the monitoring program conditions at a particular station are encountered which render collection of samples by grab dangerous or impractical, the discharger may use in its place another of the approved methods/samplers (e.g. Ekman or diver). If possible, substitutions should be approved in advance by the Regional Board.

When substitutions are necessary, the corresponding Discharge Monitoring Reports shall specify the station(s) involved and the substitute method/sampler employed.

b. Sampling Stations and Analysis

- i. The following general guidelines regarding station location/sample collection shall apply, unless otherwise specified in this Monitoring and Reporting Program.

TABLE 4. Station Location General Guidelines

STATIONS ADJACENT TO:	SAMPLE COLLECTION
PIERS/ FLOATS/ / QUAY WALLS	<p>Samples shall be taken immediately below the edge of a pier float, or quay wall and shall be collected by 0.1 m<sup>2</sup> modified van Veen dredge deployed from a boat or the side of the pier float, or quay wall.</p> <p>When a float and quay wall or pier are present side-by-side, samples should be taken below the outside (or bay-side) edge of the float (rather than between the float and quay wall or under the float).</p>
RIP RAP	<p>Samples should be collected 5 feet further from shore than where the rip rap first meets the soft bottom sediment. (In some cases, 10 feet may be specified.)</p>
STORM DRAINS	<p>Storm drain samples of bay sediment should be collected at a point approximately 10 feet from the mouth of the drain and in line with the centerline of the drain unless otherwise specified in this Monitoring and Reporting Program.</p>
BEACH	<p>The narrative descriptions will indicate the distance that a station is located relative to a stationary landmark, such as a pier or other nearby structure.</p>

- ii. The three remote reference stations identified in this Monitoring and Reporting Program are common to reference stations for other shipyards discharging to San Diego Bay. The discharger may fulfill its sampling requirements for the remote reference stations by submitting results from samples collected at these stations by other entities during the

sampling/reporting period. Reference station locations are specified in *Section K.e*, of this Monitoring and Reporting Program.

It is the discharger's responsibility to request and obtain permission from the appropriate party or parties prior to sample collection at each of the three reference stations.

c. Analysis Parameters and Detection Limits

Sample analyses shall be conducted using approved laboratory methods capable of meeting the detection limits shown in Table 5 below. Surficial sediment samples shall be analyzed for the parameters and to the detection limits indicated in Table 5 of this Monitoring and Reporting Program.

TABLE 5. *Sediment Chemistry Methods and Detection Limits*

PARAMETER	METHOD NUMBER	DETECTION LIMIT (dry weight)
grain size	--	NA
Cadmium, Chromium, Copper, Nickel, Silver <sup>1</sup>	6010	0.5 mg/kg
Mercury <sup>1</sup>	7471	0.1 mg/kg
Arsenic <sup>1</sup>	7060 or 7061	0.5 mg/kg
Lead <sup>1</sup>	7421	0.5 mg/kg
Zinc <sup>1</sup>	6010	2.0 mg/kg
Tributyltin (TBT) <sup>2</sup>	See Footnote 2	1.0 ug/kg
Total Petroleum Hydrocarbons (TPH) <sup>3</sup>	Modified 8015 or DHS	500. ug/kg
Polychlorinated biphenyls/ Polychlorinated terphenyls (PCBs/PCTs) <sup>4</sup>	8080	20.0 ug/kg
PAH <sup>5</sup>	8270	100. ug/kg

<sup>1</sup> Metals

Trace metal analysis shall include the individual concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc. Method 3050 shall be used in preparation for all metal analyses except mercury. Preparation procedures for mercury are included in method 7471.

<sup>2</sup> Tributyltin (TBT)

Concentrations of Tributyltin shall be analyzed using protocol approved by the Regional Board or as described in:

Stephenson, M.D., and D.R. Smith. 1988. *Determination of Tributyltin in Tissues and Sediments by Graphite Furnace Atomic Absorption Spectrometry*. Analytical Chemistry, Vol.60, No. 7. pp 696-698; or

Stallard M.O., and S.Y. Cola. 1989. *Optimization of Butyltin Measurements for Seawater, Tissue,*



*and Marine Sediment Samples.* Applied Organometallic Chemistry 3:105-114; or

Unger, M.A. et al. 1986. *GC Determination of Butyltin in Natural Waters by Flame Photometric Detection of Hexyl Derivatives with Mass Spectrometric Confirmation.* Chemosphere, Volume 15, Number 4. p 461.

<sup>3</sup> Total Petroleum Hydrocarbons, nC<sub>12</sub> - nC<sub>32</sub>

Using gas chromatography, analyze for the medium molecular weight hydrocarbons, boiling point range nC<sub>12</sub>- nC<sub>32</sub>. Separate the two resulting fractions, specifying the concentrations of (1) saturated aliphatic hydrocarbons; (2) unsaturated aromatic hydrocarbons; and their sum, the Total Petroleum

Hydrocarbons. The concentrations of the remaining monitored contaminants, PCBs, PCTs, and PAHs, can be determined by further analysis of these two fractions.

TOTAL PETROLEUM HYDROCARBONS

Aliphatic  
PCBs/PCTs

Aromatic  
PAHs

<sup>4</sup> PCBs/PCTs

Analyze the saturated aliphatic fraction for PCBs and PCTs, both of which can be measured in a single procedure. Run the PCB analysis as usual but include one additional standard for Aroclor 5460. At approximately 40 minutes, increase the temperature to 285 degrees celsius. PCTs elute later than PCBs and the entire procedure will take approximately 90 minutes.

Report the concentration of Total PCBs, indicating the name and degradation status of the predominant aroclor (e.g., Aroclor 1260, undegraded). The name and status of a secondary PCB aroclor shall also be reported, if present. Similarly, specify the concentration of Total PCTs assumed to be Aroclor 5460. Report the presence of any unidentified mixture of chlorinated hydrocarbons detected by electron capture gas chromatography. Additional PCB/PCT information, such as the concentrations of individual congeners, should also be provided if available without additional analytical costs.

<sup>5</sup> Polynuclear Aromatic Hydrocarbons (PAHs)

The concentrations of the individual PAHs can be determined by further analysis of the unsaturated aromatic fraction. The concentrations of the following eight PAHs shall be reported: Phenanthrene, 1-Methyl Phenanthrene, 2-Methyl Phenanthrene, Benzo(a)pyrene, Chrysene, Fluoranthene, Pyrene, and Anthracene.

Additional information, such as the concentration of other PAHs, should also be provided if available without additional analytical costs.

<sup>6</sup> Total Organic Carbon

Although not initially required, composited sediment from each sample shall be retained for possible future Total Organic Carbon (TOC) analysis. All samples shall be frozen and retained for a period of no less than 45 days from the date on which Regional Board staff received the corresponding analytical results. At that time, the Regional Board shall be notified and approval to discard the samples shall be obtained, before the samples are discarded.

d. Monitoring Results and Reports

i. Discharge Monitoring Reports

Monitoring results must be reported on Discharge Monitoring Report forms. Discharge Monitoring Report forms shall be submitted to the Regional Board in hard copy form and on either a compact disc or a 3.5 inch diskette in Microsoft Word Version 98 format.

The Discharge Monitoring Report shall contain all required sampling results in the following three forms:

(a) Tables:

Current, as well as historical, monitoring data shall be provided in tabular form. Historical monitoring data is defined as sample results from all previous reporting periods collected as a part of this Monitoring and Reporting Program. All concentrations shall be reported in both dry and wet weights. Tabular data shall be submitted in hard copy and on either a compact disk or a 3.5 inch diskette in Microsoft Excel Version 98 format.

(b) Graphs:

The specific type of graph(s) to be generated (e.g., histogram) is not specified, but left to the discretion of the discharger's consultant who should determine the most effective way of presenting the data. Graphical data shall be submitted in hard copy and on either a compact disk or on a 3.5 inch diskette in Microsoft Excel Version 98 format.

(c) Facility and Reference Station Maps:

The facility and reference station maps developed for the final Sample Collection Plan and confirmed during the "pre-sampling field effort" shall be used to present the monitoring data. A separate facility and reference station map shall be developed for each monitored contaminant or contaminant group indicating the measured concentrations at each station (rather than concentration contours).

(d) Paint Chip Analysis

In addition to tables, graphs, and maps, shipyard Discharge Monitoring Reports must also include the results of the annual paint chip analyses.

ii. Trend Curves and Statistical Analysis

The discharger shall submit annual "trend curves" for each monitored constituent, in which concentrations are plotted as a function of time. The discharger shall also determine if a statistically significant change (increase or decrease) in sediment concentrations has occurred over time for each contaminant, relative to reference concentrations.

In making this determination, the discharger shall employ a statistical method that is best suited for the data available (parametric vs. non-parametric test).

In all cases, the discharger shall report as soon as possible the cause(s) or suspected cause(s) of any increase in contaminant concentrations, if they are known.

Monitoring results shall be compared against the following three sets of reference data:

- (a) The discharger's own historical baseline data (historical data is defined as sample results from all previous sampling/reporting periods collected as a part of the Sediment Monitoring and Reporting Program);
- (b) Concentrations measured at the three remote reference sites;
- (c) Concentrations measured at nearby city storm drain(s), if present.

e. Sediment Monitoring Station Locations

- i. The discharger shall collect surficial sediment samples at the CMSD facilities in accordance with Table 6:

TABLE 6. CMSD Facilities Sediment Sampling Site Coordinates (Lambert/California Coordinates)

Station Number	Easting	Northing	Indicators Only <sup>1</sup>	Full Analysis <sup>2</sup>	Paint Chips <sup>3</sup>
CNM – 01	1723260	193275	X		
CNM – 02	1723395	193435		X	X
CNM – 03	1723480	193465	X		
CNM – 04	1723605	193365		X	X
CNM – 05	1723325	192990	X		
CNM – 06	1723580	193275	X		X
CNM – 07	1723550	193100	X		
CNM – 08	1723690	193160	X		
CNM – 09	1723835	193090	X		
CNM – 10	1724012	192980	X		
STD-CNM-01	1723245	193545		X	X

1. Indicators Only Analysis  
Grain Size  
Trace Metals

Tributyltin (TBT)

2. Full Analysis

Grain Size  
Trace Metals  
Tributyltin (TBT)  
Total Petroleum Hydrocarbons (TPH)  
Polychlorinated Biphenyls/Terphenyls (PCBs/PCTs)  
Polynuclear Aromatic Hydrocarbons (PAHs)

3. Paint Chip Analysis

For each analysis, paint chips shall be extracted from a total of approximately 9 liters of sediment; 3 liters from each of three discharger stations.

In the laboratory, the sediment shall be sieved using a screen size just large enough to allow the sediment to pass but not the paint chips. Do not exceed a maximum screen size of 16 openings per inch (openings are approximately 1/16th of an inch). The remaining debris shall then be sorted by hand to remove paint chips. After removal, the paint chips shall be photographed, quantified, and analyzed for metals and TBT.

If paint chips are present, three separate analyses shall be conducted annually. Each analysis will be conducted on paint chips extracted from three stations or replicates; the first analysis will use paint chips extracted from the three discharger stations indicated and the second analysis shall use paint chips from the three remote reference stations. The third analysis shall be conducted on three replicates taken from a single storm drain station.

The discharger shall collect surficial sediment sample from three reference stations in accordance with Table 7:

*TABLE 7. Reference Station Sampling Site Coordinates (Lambert/California Coordinates)*

<b>Station Number</b>	<b>Easting</b>	<b>Northing</b>	<b>Indicators Only<sup>1</sup></b>	<b>Full Analysis<sup>2</sup></b>	<b>Paint Chips<sup>3</sup></b>
REF-01	1697300	196600		X	X
REF-02	1706085	204810		X	X
REF-03	1715225	201110		X	X

1. Indicators Only Analysis (see Table 6 above)

2. Full Analysis (see Table 6 above)

3. Paint Chip Analysis (see Table 6 above)

## L. ENDNOTE REFERENCES

- <sup>a</sup> The presence of acute toxicity shall be determined as specified in *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (EPA 600/4-90-027F, August 1993 or subsequent editions). The discharger shall conduct a 96-hour static-renewal test with the vertebrate *Menidia beryllina*, or the invertebrate *Mysidopsis bahia*. The acute toxicity testing shall be a 96-hour static renewal test conducted on a sample of 100% effluent and a laboratory control. Use of two laboratory controls, a receiving water control, and a synthetic laboratory seawater control, is highly recommended. The salinity of the sample should be adjusted to the salinity level typical of the receiving water using dry sea salt. The adjusted salinity level shall be reported. The effluent tests shall be conducted with concurrent reference toxicant tests. Both the reference toxicant and the effluent test shall meet all test acceptability criteria as specified in the above named manual. If the test acceptability criteria are not achieved, the discharger shall re-sample and re-test.
- <sup>b</sup> The presence of chronic toxicity shall be determined as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/600/4-87/028, 1988) and/or *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95-136). The discharger shall conduct a 7-day survival and larval growth test on *Menidia beryllina* or a 7-day survival, growth/fecundity test on *Mysidopsis bahia*. Since the test methods provide for an acute/chronic dual endpoint, the discharger may use the same test species as is used for the acute toxicity test. The chronic toxicity testing shall be a 7-day static renewal test on a sample of 100% effluent and a laboratory control. Use of two laboratory controls, a receiving water control, and a synthetic laboratory seawater control, is highly recommended. The salinity of the sample should be adjusted to the salinity level typical of the receiving water using dry sea salt. The adjusted salinity level shall be reported. The effluent tests shall be conducted with concurrent reference toxicant tests. Both the reference toxicant and the effluent test shall meet all test acceptability criteria as specified in the above named manual. If the test acceptability criteria are not achieved, the discharger shall re-sample and re-test.
- <sup>c</sup> PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo(k)fluoranthene, 1,12-benzoperylene, benzo(a)pyrene, chrysene, dibenzo(ah)anthracene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.

Ordered by TENTATIVE  
JOHN H. ROBERTUS  
Executive Officer  
November 13, 2002

Attachment A

2,3,7,8-TCDD Equivalent Congeners and Toxic Equivalency Factors (TEFs)

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001